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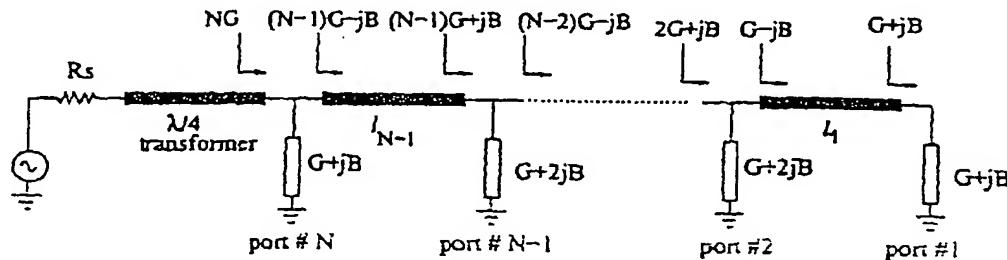
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(54) Title: **A PHASED ARRAY ANTENNA WITH EXTENDED RESONANCE POWER DIVIDER/PHASE SHIFTER CIRCUIT**



(57) Abstract: A phased array for generating a directed radiation pattern includes a plurality of power divider ports (port #N), a first tunable element connected in series between each pair of adjacent power divider ports, an antenna connected to each of the power differences between successive power divider ports, equal amplitude of the signal at each antenna, an equal amount of successive phase change in a signal at each antenna, a source connectible to at least one power divider port including an alternating power supply through a quarter-wave transformer, the first tunable element being either an inductor or a capacitor, the second tunable element being either an inductor or a capacitor, and/or each antenna separated by a successive antenna by a half wavelength.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/16008

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : H04M 11/00  
US CL : 455/103,465 343/876, 874

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 455/103,465 343/876, 874

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,115,463 A (MOLDAVSKY et al.) 19 May 1992 (19.05.1992), column 6, lines 36-61, column 5, line 5-column 6, line 13.	1, 17
Y	US 2001/0038318 A1 08 November 2001 (08.11.2001), figure 56, figure 95, figure 11A, page 38, column 2, lines 8-35.	4-16, 20-32

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"B" earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

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**INTERNATIONAL SEARCH REPORT**

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**Continuation of B. FIELDS SEARCHED Item 3:**

East search: phased array antenna, radiation pattern, power divider port, capacitor, inductor, inverter, power supply, voltage supply.